

Traditional medicinal plants used in Northern Peru for kidney problems and urinary infections

Plantas medicinales norperuanas usadas para enfermedades renales e infecciones urinarias

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Abstract

The present study attempts to give an overview on medicinal plant species employed in traditional therapies in northern Peru to treat kidney problems and urinary system disorders, and compare this use to the western scientific evidence regarding their efficacy. A total of 69 plant species belonging to 61 genera and 43 families were documented and identified as herbal remedies for kidney- and urinary tract problems in northern Peru. Most species used were Asteraceae (8 species, 11.43%), followed by Fabaceae and Poaceae (both 5 species, 7.14%). The most important families are represented similarly as in the overall medicinal flora, while some other medicinally important families (e.g. Lycopodiaceae, Cucurbitaceae) are completely missing from the kidney portfolio. The majority of kidney herbal preparations were prepared from the whole plant (27.78%), while the leaves of plants (25.56%), flowers (12.22%) and stems (16.67%) were used less frequently. In almost 64% of the cases fresh plant material was used to prepare remedies. About 88% of the remedies were applied orally, while the remaining ones were applied topically. Over half of all remedies were prepared as mixtures of multiple ingredients. The information gained on frequently used traditional remedies against this type of disorders might give some leads for future targets for further analysis in order to develop new drugs.

Keywords: Ethnobotany, traditional medicine, urinary system, calculi, kidney infections

Resumen

Este estudio trata de reportar las plantas medicinales usadas en la terapia tradicional en Perú en contra de problemas del sistema urinaria y de los riñones, y comparar los resultados con ensayos de ciencia sobre la eficacia de estas especies. Un total de 69 especies de plantas de 61 géneros y 43 familias fueron documentadas como remedios herbóreos en contra de problemas de riñones y del sistema urinario. La mayoría de las especies pertenece a Asteraceae (8 especies, 11.43%), Fabaceae y Poaceae (ambos con 5 especies, 7.14%). La mayoría de las preparaciones para enfermedades de riñones estuvieron preparadas de la planta entera (27.78%), hojas (25.56%), flores (12.22%) y tallos (16.67%). Casi 64% de las plantas estuvieron usadas frescas, y 88% de los remedios fueron tomados oralmente. Más que la mitad de las preparaciones fueron mezclas con ingredientes múltiples. La información de estos remedios tradicionales utilizados con frecuencia pueden dar las pautas para futuros análisis y el desarrollo de nuevos fármacos.

Palabras clave: Etnobotánica, medicina tradicional, sistema urinario, cálculos, infección renal

Introduction

The recent WHO report on urinary tract infections (UTI) indicates that URIs are one of the most common bacterial infections seen, in particular in children. It has been estimated that UTI are diagnosed in 1% of boys and 3-8% of girls. In the first year of life UTI is more prevalent in boys with rates of 2.7% compared with 0.7% in girls. The reported rate of recurrent UTI is around 12-30% with

risk greater in infants < 6 months, severe vesico-ureteric reflux and abnormal nuclear renal scans at time of first infection (WHO 2005). Studies have shown a higher UTI prevalence of 8-35% in malnourished children, with the risk of bacteriuria increasing significantly with the severity of malnutrition (WHO 2005).

Traditional Medicine is used globally and is rapidly growing in economic importance. In developing

countries, Traditional Medicine is often the only accessible and affordable treatment available. The WHO reports that Traditional Medicine is the primary health care system for % of the population in developing countries. In Latin America, the WHO Regional Office for the Americas (AMRO/PAHO) reports that 71% of the population in Chile and 40% of the population in Colombia have used Traditional Medicine. In many Asian countries Traditional Medicine is widely used, even though Western medicine is often readily available. In Japan, 60–70% of allopathic doctors prescribe traditional medicines for their patients.

Complementary Alternative Medicine is also becoming more and more popular in many developed countries. Forty-two percent of the population in the US have used Complementary Alternative Medicine at least once (WHO 1998), and a national survey reported the use of at least one of 16 alternative therapies increased from 34% in 1990 to 42% in 1997 (UNCCD 2000). The number of visits to providers of Complementary Alternative Medicine (CAM) now exceeds by far the number of visits to all primary care physicians in the US (WHO 1999ab, 2002).

The expenses for the use of Traditional and Complementary Alternative Medicine are exponentially growing in many parts of the world. The 1997 out-of-pocket Complementary Alternative Medicine expenditure was estimated at US\$ 2,700 million in the USA. The world market for herbal medicines based on traditional knowledge is now estimated at US\$ 60,000 million (Breevort 1998).

Northern Peru is believed to be the center of the Central Andean Health Axis (Camino 1992), and traditional medicinal practices in this region are still an important component of everyday life (Bussmann and Sharon 2006, Bussmann 2006, De Feo 1992, Joralemon and Sharon 1993, Polia 1988, Sharon 1978, 1980, 1994, 2000, Sharon and Bussmann 2006). Traditional Medicine is also gaining more and more respect by national governments and health providers. Peru's National Program in Complementary Medicine and the Pan American Health Organization recently compared Complementary Medicine to allopathic medicine in

clinics and hospitals operating within the Peruvian Social Security System (EsSalud 2000). According to WHO (2002), the sustainable cultivation and harvesting of medicinal species is one of the most important challenges for the next few years.

The present study attempts to give an overview on medicinal plant species employed in traditional therapies in Northern Peru to treat kidney problems and urinary system disorders, and compare this use to the western scientific evidence regarding their efficacy.

Material and methods

Plant Collections

Plants in Peru were collected in the field, in markets, and at the homes of traditional healers (curanderos) in northern Peru (Fig. 1) in August-September 2001, July-August 2002, July-August 2003, June-August 2004, July-August 2005, July-August 2006, June-August 2007, June-August 2008, March-April 2009 and June-August 2009. A total of 116 informants (healers and market venders) in the Trujillo and Chiclayo area were interviewed using structured questionnaires. The informants were always provided with fresh plant material, either collected with them, by them, or available at their market stands. The questionnaires did not include any reference as to disease concepts, plant parts or preparations. In contrast, the participants were only asked simple questions along the lines "What is this plant used for, which part, which quantity, how is it prepared, are any other plants added to the mixture." All questions were asked in the same order. All informants were of Mestizo origin, and spoke only Spanish as their native language. The study covered the four existing medicinal plant markets of the region, and included all venders present. All interviews were conducted with the same set of participants. The specimens are registered under the collection series "RBU/PL," "ISA," "GER," "JULS," "EHCHL," "VFCHL," "TRUBH," and "TRUVANERICA," depending on the year of fieldwork and collection location. Surveys were conducted in Spanish by fluent speakers. Surveyors would approach healers, collectors and market vendors and explain the premise for the study, including the goal of conservation

of medicinal plants in the area.

Vouchers of all specimens were deposited at the Herbario Truxillensis (HUT, Universidad Nacional de Trujillo), and Herbario Antenor Orrego (HAO, Universidad Privada Antenor Orrego Trujillo). In order to recognize Peru's rights under the Convention on Biological Diversity, most notably with regard to the conservation of genetic resources in the framework of a study treating medicinal plants, the identification of the plant material was conducted entirely in Peru. No plant material was exported in any form.

Nomenclature

The nomenclature of plant families, genera, and species follows the Catalogue of the Flowering Plants and Gymnosperms of Peru (Brako and Zarucchi 1993) and the Catalogue of Vascular Plants of Ecuador (Jørgensen and León-Yanez 1999). The nomenclature was compared to the TROPICOS database. Species were identified using the available volumes of the Flora of Peru (McBride 1936-1981), as well as Jørgensen and Ulloa Ulloa (1994), Pestalozzi (1998) and Ulloa Ulloa and Jørgensen (1993), and the available volumes of the Flora of Ecuador (Sparre and Harling 1978-2009), and reference material in the herbaria HUT, HAO, QCA, LOJA and QCNE.

Results

A total of 69 plant species belonging to 61 genera and 43 families were documented and identified as herbal remedies for kidney- and urinary tract problems in Northern Peru. Most species used were Asteraceae (8 species, 11.43%), followed by Fabaceae and Poaceae (both 5 species, 7.14%). All other families mostly contributed only one species each to the pharmacopoeia (Tab. 1). A complete overview of all plants encountered, including data on use-recipes and preparation, is given in Appendix 1. The most important families are represented similarly as in the overall medicinal flora, while some other medicinally important families (e.g. Lycopodiaceae, Cucurbitaceae) are completely missing from the kidney portfolio (Tab. 2) (Bussmann and Sharon 2006).

The majority of kidney herbal preparations were prepared from the whole plant (27.78%), while the leaves of plants (25.56%), flowers (12.22%) and stems (16.67%) were used less frequently (Tab. 3). (Tab. 3, Bussmann and Sharon 2006). This indicates that the local healers count on a very well developed knowledge about the properties of different plant parts. In almost 64% of the cases fresh plant material was used to prepare remedies, which differs little from the average herbal preparation mode in Northern Peru. About 88% of the remedies were applied orally, while the remaining ones were applied topically. Over half of all remedies were prepared as mixtures of multiple ingredients by boiling plant material either in water or in sugarcane spirit.

Discussion

Kidney and urinary system problems are very common globally, but allopathic treatments, in particular with regard to renal calculi, are mostly focused on dilation of the ureter, and pain management. Although a large number of plants are used in traditional medicine to treat this problem, less than 35% of the plants found in Peru or their congeners have been studied at all for their medicinal properties. Kim et al. (2006) report on the kidney-protective effects of Brassica root extract. Venentovká and Ulichichová (2003) found efficacy in *Smallanthus sonchifolius* and *Lepidium meyenii*, both neglected Andean crops, and the latter very frequently sold in the herbal; supplement industry. Other medicinals with positive effects on the urinary system that were at least exposed to some preliminary research were Aloe (Kirdpon et al. 2006), *Annona* and *Citrus* (Hernández et al. 1984), *Dioscorea* and *Hydrocotyle* (Lee et al. 2002; Wojcikowski et al. 2008), *Plantago* (Samuelsen 2000). Lans (2006) published a long list of remedies for kidney problems from research in Trinidad and Tobago. *Arctium lappa* (Grases et al. 1994), *Zea mays* (Masteiková et al. 2007), many species of *Equisetum* (Masteiková et al. 2007; Wright et al. 2007), and especially species of *Phyllanthus* and *Tribulus* (Calixto et al. 1998, Kieley et al. 2008), have shown efficacy in uroithiasis. The main problem from a patient perspective lies however in the

fact that many species, e.g. of *Phyllanthus*, are highly similar, while only a few display the desired effect.

Kidney and urinary tract diseases are a major health challenge worldwide. Many plant species are traditionally used for kidney disease treatment, and some have been investigated for their efficacy with positive results. An often-limiting factor to these investigations is lack of comprehensive ethnobotanical data to help choose plant candidates for potency/efficacy tests. Since the plant parts utilized in preparation of kidney remedies are reported in this survey, it serves as an indication of species that may need further ecological assessment on their regeneration status.

The results of this study show that both indigenous and introduced species are used for the treatment of urinary tract problems. The information gained on frequently used traditional remedies against this type of disorders might give some leads for future targets for further analysis in order to develop new drugs. However, more detailed scientific studies are desperately needed to evaluate the efficacy and safety of the remedies employed traditionally.

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Table 1. Plants used for kidney and urinary disorders in Northern Peru

Family	Genera	Species	%
Asteraceae	8	8	11.59
Fabaceae	5	5	7.25
Poaceae	5	5	7.25
Brassicaceae	3	3	4.35
Euphorbiaceae	1	3	4.35
Boraginaceae	2	2	2.89
Amaranthaceae	1	2	2.89
Dioscoreaceae	1	2	2.89
Equisetaceae	1	2	2.89
Geraniaceae	1	2	2.89
Linaceae	1	2	2.89
Plantaginaceae	1	2	2.89
Anacardiaceae	1	1	1.45
Annonaceae	1	1	1.45
Apiaceae	1	1	1.45
Asphodelaceae	1	1	1.45
Bixaceae	1	1	1.45
Caprifoliaceae	1	1	1.45
Caryophyllaceae	1	1	1.45
Crassulaceae	1	1	1.45
Ericaceae	1	1	1.45
Gentianaceae	1	1	1.45
Krameriaceae	1	1	1.45
Lamiaceae	1	1	1.45
Lythraceae	1	1	1.45
Monimiaceae	1	1	1.45
Nyctaginaceae	1	1	1.45
Orchidaceae	1	1	1.45
Passifloraceae	1	1	1.45
Polygonaceae	1	1	1.45
Polypodiaceae	1	1	1.45
Portulacaceae	1	1	1.45
Proteaceae	1	1	1.45
Rosaceae	1	1	1.45
Rubiaceae	1	1	1.45
Rutaceae	1	1	1.45
Scrophulariaceae	1	1	1.45
Smilacaceae	1	1	1.45
Solanaceae	1	1	1.45
Sterculiaceae	1	1	1.45
Urticaceae	1	1	1.45
Verbenaceae	1	1	1.45
Zygophyllaceae	1	1	1.45
TOTAL	61	69	99.97

Table 2. Comparison of kidney and urinary treatments to the ten most important plant families of the medicinal flora of Northern Peru (after Bussmann and Sharon 2006)

Kidney and Urinary Medicinal Flora of Northern Peru

Family	%	Family	%
Asteraceae	11.43	Asteraceae	13.64
Fabaceae	7.14	Fabaceae	6.82
Lamiaceae	1.43	Lamiaceae	4.87
Solanaceae	1.43	Solanaceae	4.09
Euphorbiaceae	4.29	Euphorbiaceae	2.33
Poaceae	7.14	Poaceae	2.33
Apiaceae	1.43	Apiaceae	2.14
Lycopodiaceae	0	Lycopodiaceae	1.95
Cucurbitaceae	0	Cucurbitaceae	1.75
Rosaceae	1.43	Rosaceae	1.75

Table 3. Plant part used

Plant part	%	#
Whole plant	27.78	25
Leaves	25.56	23
Stems	16.67	15
Flowers	12.22	11
Seeds	7.78	7
Root	6.67	6
Fruit	2.22	2
Bark	1.11	1

Appendix 1. Species encountered and used in Northern Peru for kidney and urinary system disorders

Family/Genus/Species	Indigenous name	Plant part used	Admin.	Preparation	Use	Coll. #
AMARANTHACEAE						
<i>Iresine diffusa</i> H.B.K. ex Willd.	paja blanca, sangrinaría	Whole plant, fresh	Oral	Boil 10g per 1l water, mix with Ambarina, Lancetilla, Hierba de la Rabia, and Palo de Sange. Drink three times per day or as needed, 1l daily, for 1 year.	Kidneys	JULS75, ISA62
<i>Iresine herbstii</i> Lindley	colores, timoras, zangurache	Leaves, fresh	1. Topical 2. Oral	1. Fresh Leaves only, may use with Yonque, 7 Espiritus, and Bully Vinegar and Contrahierba. As poultice, 3 times a week. 2. Boil 5g per 1l water with Lancetilla, Contrahierba, Cachorillo, or chop, eat fresh. Oral once a day for a week or drink 1l daily, 1 month, always before breakfast.	Kidneys	ISA42, EHCHL114, ISA121
ANACARDIACEAE						
<i>Mauria heterophylla</i> H.B.K.	shimir, tres hojas, trinidad, chacur, Ahimir, feregreco	Leaves, fresh	Oral	10g per cup, combined with Cola de Caballo, Verbena, Amor Seco, and various others. Drink the solution and use as a wash. Take 4 cups per day, 1 month.	Kidneys	ISA24, JULS17, EHCHL83
ANNONACEAE <i>Annona muricata</i> L.	huanabana, graviola	Leaves, fresh	Oral	Boil 1/2l of water with 10 Leaves of Huanabana and 10g of Amor Seco, Peel of Pinapple, Achote for 3-4 minutes. Drink cold, 3-4 cups a day for 1 month.	Kidneys	GER2, EHCHL81
APIACEAE						
<i>Hydrocotyle globiflora</i> R. & P.	sombrerito	Whole plant, fresh	Oral	4 small Leaves, 2 Flowers per 1l, boil 3 min. Drink 3 times per day, for 1 month.	Inflammation of the kidneys	JULS63
ASPHODELACEAE						
<i>Aloe vera</i> (L.) Burm f.	Sabila, Zabila, Aloe, hojas de sabila, aloe vera	Leaves, fresh	Oral	1kg of herb, 1/2kg of Honey, and three Tbsp of Pisco. Open the leaf longitudinally and	Kidneys	JULS274, GER22, EHCHL165, VFCHL10

	extract the iodine secretion and the internal gel from the inside of the leaf. Consume the iodine secretion and the gel. 1-2 cups per day for a week to a month. Leaf can also be macerated in a bottle of alcohol.			Renal bleeding	GER7
ASTERACEAE					
<i>Acmella</i> cf. <i>ciliata</i> (H.B.K.) Cas.	Root, dried	Oral		Urinary problems	GER227
<i>Arctium lappa</i> L.	Seeds, dried	Oral			
	simba simba, carceja, karqueja, cadillo			Kidneys	EHCHL101, TRUBH10, RBU/PL255, JUSL34, VFCHL36, EHCHL92
<i>Baccharis genistelloides</i> (Lam.) Pers.	Whole plant, fresh	Oral		Kidney Inflammation	JUSL74, VFCHL25, EHCHL18, ISA127, GER1
<i>Bidens pilosa</i> L.	Whole plant, fresh or dried	1. Oral 2. Topical			
	Amor Seco, Cadillo, Morseco, Tres Esquinas, Karqueja				
	Chuquiragua, Huamanpinta			Kidneys	EHCHL168, RUBH9, JUSL276, RBU/PL373
<i>Chuquiraga spinosa</i> sp. huamanpinta C. Ezcurra	Leaves, dried	Oral			
	Canchalagua, Canchalagua (Chica)			Inflammation of the urinary tract	RBU/PL266, ULS42, VFCHL27, GER228
<i>Schkuhria pinnata</i> (Lam.) Kuntze	Whole plant, fresh	Oral			
	Purenrosa, Boldo, Berro, of Flor Blanca and				

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BRASSICACEAE

Brassica rapa L.

Grind 2 big tubers. Place on affected area, cover with a piece of cloth for 5 min. 3-4 times per day for 2 days.

Root, fresh

Nabo

Topical

JULS201

Capsella bursa-pastoris (L.) Bolsita del Pastor, Whole plant, fresh Oral
Medic. Hierba del Pastor, Bolsa or dried

10-30g per 1l water, mix with Chacur, Verbena, Espiga de Maiz, Flor Blanca, Cola de Caballo, Flor de Arena, Pasuchaca, Corpus Way, Cola de Caballo, Arenilla. 4 cups per day, 1 month as needed.

Kidneys, Urinary tract

JULS7, VFCHL42, VFCHL12, RBU/PL257, EHCHL6

Rorippa nasturtium-aquaticum Berros

(L.) Hayek

Whole plant Oral
except root, fresh
or dried

Urine

RBU/PL367, EHCHL25, JULS113

Oral fresh as needed or crush and drink juice with Alfalfa. Make a soup with the nape of the neck of the sheep and boil. Add potatoes and veggies. Alternatively boil 1l of water with Berros, plus 10g total of Malva, Pie de Perro, Unquia, Amor Seco, Chacur, PajaBlanca, Flor de Arena, Puren Rosa, and other herbs. Boil for 3 to 4 minutes. Drink 3 to 4 times a day for 1 month.

Inflammation of the kidneys

CAPRIFOLIAEAE

Sambucus peruviana H.B.K.

Sauco, Saucotillo

1. Leaves, Flowers 1. Oral
and Stems, fresh 2. Topical
or dried
2. Leaves, fresh

1. 5-20g per 1l, boil for 1 min, as tea, combine with Llonque. 3 times per week, up to 1l per day if needed, or until fever passes. Take while cold. Rub with Llonque.
2. Poultice, one time per month.

1. Kidneys
2. Inflammation of the kidneys

EHCHL140, 110, RBU/PL291, VFCHL44, ISA131, ISA87, JULS246

CARYOPHYLLACEAE

Stellaria media (L.) Criollo

Tripa de Cuy

Whole plant, fresh Oral

JULS262

Add 10g of plant material with 1l of water, Malva, Amor Seco, Chacur and Unguia. Drink 1 cup, 3-4 times a day, for 1 month.

Inflammation of the kidneys, Renal disease

CRASSULACEAE

Echeveria peruviana Meyen

Pinpin, Siempre Viva, Rosa Berta, Haya Rosa

Oral

2 Leaves per 1/2l water, boil 5 min. 1l daily or three times per day.

Inflammation of the kidneys

EHCHL118, FCHL33, JULS249

DIOSCOREACEAE

Dioscorea tambillensis Kunth

Papa Semitona

Oral

1l of water add 1 Papa (usually 10g), with 20g total of Amor Seco, Chacur, Cola de Caballo,

Inflammation of the kidneys

JULS283, GER140

<i>Dioscorea trifida</i> L.f.	Papa Madre, Papa Pacta	Tuber, fresh	Oral	Pie de Perro, Verbena, Linaza, and seperately toasted Cebada. Boil for 2 to 3 minutes. Drink lukewarm. One can also add sugar or limes for flavor. 3 times a day, 1 cup, for 1 month.	JULS214, EHCHL40, JULS212, GER142, JULS213
EQUISETACEAE					
<i>Equisetum bogotense</i> (H.B.K.) Kunth	Cola de Caballo, Cola de Caballo (Hembra)	Stems, dried	Oral	1 Tbsp per 1l boiling water, used with herbs Overo, Lancetilla, Chante, Ochote and Zarzaparrilla. Drink 1l daily, 1 month.	ISA52, TRUVan/ Erica6, ISA107 Kidneystones.
<i>Equisetum giganteum</i> (Wedd.) Ulbrich	Limpia Plata, Cola de Caballo, Tembladera	Whole plant, fresh	Oral	Boil 10-20g per 1l water. Combine with Verbena, Manzanilla, Chacur, Unquia, Espiga de Maiz, Paja Blanca, Berro, Pata de Perro, Papa Madre, Peloza de Choclo and other herbs that are good for the kidneys. Mix with Chante and Ochote for prostate. Boil 2-5 min., drink 4 cups per day, 1 month.	VFCHL1, JULS5, TRUBH19, GER149
ERICACEAE					
<i>Bejaria aestuans</i> L.	Pullunrosa, Cadillo, Payama, Hierba de la Postema, Hierba del buen querer, Purenrosa, Pulrosa	Flowers, Leaves and Stems, fresh or dried	Oral	5g per 1l, boil 5 min, used with Flor Blanca, Papa Madre, Flor de Arena, Gauyusa, Pasuchaca, Malva, Amor Seco, Berbena, Llantén, Cola de Caballo, Chumbiaura, Palo de China, Huaminga, Quinuajiro. Drink 3 cups daily or 1l per day for 1-3 months.	VFCHL22, JULS50, EHCHL39, ISA114, ISA43, JULS234, GER121
EUPHORBIACEAE					
<i>Phyllanthus niruri</i> L.	Chanca Piedra	Whole plant, fresh or dried	Oral	10g of the plant, Cola de Caballo, Llantén, Boldo, Flor de Overo, Caña-caña, Flor Blanca and Flor de Arena and 1l of water and boil for 3 to 5 minutes. Drink 3 times a day for 2 weeks.	JULS133
<i>Phyllanthus stipulatus</i> (Raf.) Webster	Chanca Piedra	Whole plant, fresh or dried	Oral	10g of the plant, Cola de Caballo, Llantén, Boldo, Flor de Overo, Caña-caña, Flor Blanca	EHCHL167

<i>Phyllanthus urinaria</i> L.	Chanca Piedra	Whole plant, fresh or dried	Oral	and Flor de Arena, and 1l of water and boil for 3 to 5 minutes. Drink 3 times a day for 2 weeks. Kidneys	Bladerstones, Kidneys	GER152
FABACEAE						
<i>Desmodium molliculum</i> (H.B.K.) DC.	Pie de Perro, Pata-Perro, Pata de Perro, Chancas Comida, Muña, Manayupa	Whole plant, fresh or dried	Oral	Boil 10g Pie de Perro per 1l water. Combine with Chacur, Amalba, Amor Seco, and Verbena. Drink 4 times per day for one month.	Inflammation of the kidneys	JULS41, RBU/PL268, GER135, ULS44, EHCHL109, RBU/PL256
<i>Medicago sativa</i> L.	Alfalfa	Flowers, fresh	Oral	Blend 20 Flowers in 1/4 cup of water. 1 small cup 1 a month for 3 months. Do not exceed dosage or might loose eyesight. Plant is very hot.	Kidney disease	JULS96, GER42
<i>Mimosa nothacacia</i> Barneby	Uña de Gato de la Costa	Bark, dried	Topical	Boil 200g of Uña de Gato de la Costa into 3l of water for 10 minutes and then place hot water into a tub. Pour hot tizana into a tub and then sit in it for about 5 minutes. 2 times a week until the patient is cured.	Kidney inflammation	JULS265, GER199
<i>Senna bicapsularis</i> (L.) Roxburgh	Alcaparrilla, Alpacaquilla	Whole plant, fresh	Topical	Add 10g of Alcaparrilla, with 1l water. Also add 40g of a mixture consisting of Cola de Caballo, Alonso Verbena. Boil the mixture for 3-5 minutes. Drink 1 cup, 3-4 times a day for one month, or as needed.	Detoxification of kidneys	JULS95
<i>Trifolium repens</i> L.	Trebol, Trebol de agua	Flowers, Leaves and Stems, fresh or dried	Oral	1 Tbsp per 3l water. Can combine with Lancetilla, Colores. Can also sometimes combine with a little Zarzaparrilla. Drink 1l daily, 1-2 months or take 1 Tbsp of the freshly chopped plant in the morning every day, 1 week.	Inflammation of the urinary tract, Inflammation of the kidneys, Kidneys	ISA47, RBU/PL330, EHCHL30
GENTIANACEAE						
<i>Gentianella dianthoides</i> (H.B.K.) Fabris	Genciana, Egenciana, Amargon, Campanilla	Whole plant, fresh	Oral	Boil 10g Genciana with 1l water for 2 minutes. 1 time per day, take before eating, in the evening, every other day, for 1 week. Overdosing can cause miscarriage.	Kidneys	RBU/PL253, 320, ULS56, EHCHL136, 61

GERANIACEAE

Geranium ayavacense Willd ex H.B.K. Puli Punchi, Pasuchaca, Whole plant, fresh Oral

Boil 1l water with 10g Pasuchaca for 3 minutes. Kidneys, Urinary
Combine with Chacur, Cola de Caballo, tract
Verbena, Unquia, Amor Seco, and Grama Dulce.
4 cups per day for 1 month. VFCHL6

Geranium sesiliflorum Cavanilles Puli Punchi, Pasuchaca, Whole plant, fresh Oral

Boil 1l water with 10g Pasuchaca for 3 minutes. Kidneys, Urinary
Combine with Chacur, Cola de Caballo, tract
Verbena, Unquia, Amor Seco, and Grama Dulce.
4 cups per day for 1 month. JULS48,

KRAMERIACEAE

Krameria lappacea (Dombey) Berdet & B. Simpson Ratania, Raima Leaves and Root, fresh Oral

10g per 1l water, boil 3 min, drink as needed. Inflammation of
the kidneys, and
bladder JULS53

LAMIACEAE

Thymus vulgaris L. Tomillo Leaves, Stems and Oral

Boil 5g per 1l water. Drink 3 times per day. Bladder
EHCHL169

LAURACEAE

Persea americana Mill. Palta Seeds, fresh Oral

Grind 1 Palta Seed (for several dosis). Boil 10g Kidneystones
of Palta Seeds grind in 1/2 cup of water for 3
minutes. Add Linaza and sugar. Patient should
drink lukewarm solution. 1 cup 4 times a day
for a month. If used 3 times on a row the woman
will become sterile. JULS211, GER18

LINACEAE

Linum sativum L. Linaza Seeds, dried Oral

1 Tbsp or 5g, 10g of Cola de Caballo, Chanca Piedra, Inflammation
Cana Cana, Boldo, and Overo. Boil the mixture for of the kidneys,
5 minutes, then let mixture cool. Can mix with Cola Kidneystones
de Caballo, Boldo. Take 1 cup, 3-4 times a day, for
2 weeks to 1 month. Drink lukewarm. JULS185, GER139

Linum usitatissimum L. Linaza Seeds, dried Oral

1 Tbsp or 5g, 10g of Cola de Caballo, Chanca Piedra, Inflammation
Cana Cana, Boldo, and Overo. Boil the mixture for of the kidneys,
5 minutes, then let mixture cool. Can mix with Cola Kidneystones
de Caballo, Boldo. Take 1 cup, 3-4 times a day, for
2 weeks to 1 month. Drink lukewarm. EHCHL159

LYTHRACEAE

<i>Cuphea strigulosa</i> H.B.K.	Lancetilla, Gacetilla, Sanguinaria, Gansetilla, Hierba del Toro	Leaves and Stems, fresh	Oral	5-20g per 1l for 3 min, combine with Congona, Claveles, and Madre Selva, Ortiga, Moradilla, Contrahierba, Colores, Agujilla, Colcacur, Pie de Perro, Cola de Caballo, Verbena, Pimpinela, Flor Blanca, Grama Dulce, Esencia de Rosa and Cadillo. Drink 3-4 times per day, 1l daily, take 1 week - 3 months. Patient should drink solution before eating.	Kidneys	GER10, EHCHL35, VFCHL34, JULS33, ISA51, RBUP259, EHCHL43, JULS59, ISA53, GER147
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MONIMIACEAE

<i>Peumus boldus</i> Molina	Boldo	Leaves, dried	Oral	1l of water and 10g of Boldo, Pie de Perro, Linaza, Berros, Pata de Perro, Papa Madre, Espiga de Maíz and Flor de Overo. Boil for 2 to 3 minutes. Drink warm, 1 cup 3 to 4 times a day for 1 month.	Kidney Inflammation	JULS11, GER157
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NYCTAGINACEAE

<i>Mirabilis jalapa</i> L.	Buenas Tardes	Root, fresh	Oral	50g of each of the following: Buenas Tardes, Paja de Lagartija (Flor de Arena), and 1 cup of water. Boil for 5 minutes. Add honey. Drink lukewarm, 1 cup 3 to 4 times a day for 1 month.	Kidneystones	JULS116, GER185
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ORCHIDACEAE

<i>Lycaste gigantea</i> Lindl.	Caña Caña	Stems, fresh	Oral	Add 10g of the plant material, 10g of Linaza, Berro, Pata de Perro, Papa Madre, Espiga de Maíz, and 1/2l of water. Boil the mixture for 5 minutes. Drink cold, 1/2 cup twice a day, for 8 days.	Kidney inflammation	GER156
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PASSIFLORACEAE

<i>Passiflora ligularis</i> Jus.	Hoja de Granadilla, Granadilla	Leaves and new shoots, fresh	Oral	Combine 1l water with 10g of Granadilla. Add Boldo, Cola de Caballo, Chacur and Amor Seco. Boil the mixture for 3-5 minutes. Take 1 cup, 3-5 times a day for 1 month. Do not use if pregnant!	Inflammation of the kidneys	EHCHL47, JULS163
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PLANTAGINACEAE

<i>Plantago linearis</i> H.B.K.	Llantén Serrano, Llantén de la Costa, Llantén	Whole plant, fresh	Oral	10 grams per 1l water, mixed with Cola de Caballo, Chacur, Unquia, Grama Dulce, Flor Blanca. 4 times per day, 1 month. Harms the vision. Don't take more than one month.	Inflammation of the kidneys, Bladder	JULS35, JULS86, GER133
<i>Plantago major</i> L.	Llantén	Leaves, fresh	Oral	Boil 20-30g per 1l, 3-5 min. mix with Ortiga, Berros, Lancetilla, Chanca Piedra, Flor Blanca. Drink 1 time per day for 3-8 days. Taking too	Kidneys	VFCHL50, EHCHL11, TRUVan/Erica13

POACEAE					much might harm vision.	
<i>Cenchrus echinatus</i> L.	Abrojo, Cadillo	Whole plant, fresh	Oral	Boil 100g Abrojo, Amor Seco, Lampazo, Trinozo into 1/2 cup of water for 3 minutes. Drink 1/4 cup 1 time a day for 3 days.	Urinary disease	JULS89
<i>Cynodon dactylon</i> (L.) Persoon	Grana Dulce	Stems, dried	Oral	Boil 10g per 1l, mixed with Cola de Caballo, Verbena, Amor Seco, Malva, Flor Blanca, Hierba de Apostema, Zarzaparrilla and Hierba del Toro. Drink 1l daily, 6-12 months.	Inflammation of the kidneys	ISA61, JULS73, ISA106, GER151
<i>Hordeum vulgare</i> L.	Cebada	Seeds, dried	Oral	Boil 2l of water with 250g of toasted Seeds, 50g Linaza and 10g of Cola de Caballo, Amor Seco and Malva. 1 cup 3-4 times a day for 1 month.	Inflammation of the kidneys	JULS128, GER183
<i>Saccharum officinarum</i> L.	Azucar de Caña, Caña de Azucar, Caña de Dulce, Caña Dulce	Stems, fresh	Oral	20g of each of the following: Caña Dulce (do not Peel!), Cola de Caballo, Linaza, Chanca Pieda, Boldo, Pata de Perro. Boil in 1/2l of water for 5 minutes. Drink cold. One cup a day for 20 days.	Inflammation of the kidneys	VFCHL4, JULS123, GER208
<i>Zea mays</i> L.	Espiga de Maiz, Chuno de Maiz, Maiz	1. Flowers, fresh 2. Seeds, dried	1. Oral 2. Oral	1. Boil 10g Espiga de Maiz per 1l water for 3 minutes. Drink all, 3 Flowers at four times per day or as needed. 2. 1/2l of water, 1/2kg of corn, a bunch of Chancaca and boil for 5 to 10 minutes (until corn is cooked). Hot servings (reheat if not fresh). Once eaten, stay in room, do not come out to rid the chills. 2 times a day for 2 days.	1. Kidneys 2. Kidney Inflammation	JULS69, JULS139, GER31, GER186
POLYGONACEAE						
<i>Rumex crispus</i> L.	Acelga, Lengua de Vaca, Hojas de Mala Hierba	Whole plant, fresh	Oral	Boil 20g Acelga per 1l water. Drink 3 times per day for 1-11/2 months.	Infection of the uterus, Inflammation of the kidneys	JULS70, EHCHL173
POLYPODIACEAE						
<i>Polypodium crassifolium</i> L.	Lengua de Ciervo, Lengua de Servio, Calagualla, Lengua de Ciervo	Stems, fresh	Oral	10g per 1l water boiled with 10g total of Pie de Perro, Amor Seco, Cola de Caballo and rind of pineapple. Drink 1l daily for 1 month. Patient should drink lukewarm solution.	Inflammation of the kidneys, Bladder, Kidneys	EHCHL71, JULS303, TRUBH38, JULS52, RBU/PL331, RBU/PL332,

92 PORTULACACEAE

Portulaca oleracea L. subsp. *tuberculata* Danin & H.G. Baker

Verdolaga

Whole plant, Oral
fresh

In 1l of water, boil for 3 min. Boldo, Flor de Arena, Cola de Caballo. All these together should add 10g. Drink a cup 3 to 4 times a day for a month. Can also be eaten as salad with olive oil, add lemon and salt, once a week.

Bad kidneys

JULS268

PROTEACEAE

Oreocallis grandiflora (Lam.) R.Br.

Rumilanche, Bunbun, Huaminga

Leaves and Stems, Oral
fresh or dried

Inflammation of the kidneys
EHCHL127, JULS31, ISA28, ISA70

ROSACEAE

Rubus robustus C. Presl.

Zarzamora, Moyaca, Zarza, Zarza Parrilla, Mora, Cushai

Flowers and Oral
Leaves, fresh or dried

Kidneystones, Kidney Inflammation
ISA41, ISA48, J U L S 4 7 , EHCHL132(b)

RUBIACEAE

Uncaria tomentosa (Willdenow ex Roemer & Schultes) DC.

Uña de Gato, Uncaria Tormentosa, Una de Gato de la Selva

Leaves and Stems, Oral,
fresh or dried

Kidneys, Bladder, Kidney Inflammation
V F C H L 1 1 , R B U / P L 2 6 3 , E H C H L 1 0 3 , J U L S 2 7 5 , GER230

RUTACEAE

Citrus limon (L.) Burm. f.

1. Fruit and Fruit Peel, fresh
2. Fruit without Seeds, fresh

1. Boil 1l of water with 1 lime for 2-3 minutes. Combine with Cola de Caballo, Pie de Perro, Chacur, Amor Seco, and Verbena. Take 1 cup, 3-4 times a day, for 1 month. Solution can also be used to gargle and to wash the hair.
2. Prepare a Limon Suazado by removing the Peel and Seeds from 3 limes, adding the limes into a can with a bit of salt and heating the can over a fire for several seconds until limes become sweet. Squeeze the lemon juice onto the affected area (area of stomach, kidney, or ovaries) and cover with a piece of cloth. Apply 3-4 times day, for 2-3 days, as needed.

JULS183, GER11

E H C H L 1 1 8 , V F C H L 3 3 , JULS249

J U L S 2 8 3 , GER140

SCROPHULARIACEAE					
<i>Capraria peruviana</i> Benth	Flor Arenilla, Te de Indio	Whole plant, fresh or dried	Oral	Boil 5g per 1l water. Drink 3 times per day.	Urine retention, RBU/PL374, Inflammation of EHCHL170 the urinary tract
SMILACACEAE					
<i>Smilax medica</i> M.Martens & Galeotti	Zarzaparilla, Zarza Parilla	Stems, dried	Oral	In 1 cup of water boil 20g of Zarzaparrilla plus 20g of Congona, Chajur, Matico and Cola de caballo for 5 minutes. Drink in the morning while fasting. 1 cup 3 times a day for 1 month in the morning before breakfast. Repeat if necessary.	Inflammation GER218, of the kidneys JULS273
SOLANACEAE					
<i>Lycopersicon peruvianum</i> (L.) Mill.	Tomate de Monte	Whole plant, fresh	Oral	Boil for 5 minutes 100g of the plant material with 1l of water. Drink cold, 1/2 cup, fasting for 5 days.	Urinary GER237 infections
STERCULIACEAE					
<i>Theobroma cacao</i> L.	Cacao	Fruit Peel, dried	Oral	1l of water, add 10g of cacao. Boil 2 to 3 minutes. Drink warm, 1 cup 3 times a day for 1 month.	Inflammation JULS117 of the kidneys
URTICACEAE					
<i>Pilea microphylla</i> (L.) Lieberman	Contra Hierba	Whole plant, fresh	Oral	3-5 minutes mixed with Cola de Caballo, Hoga de Achote, Chanca Piedra. Drink 1l per day for 15 days.	Bladderstones, RBU/PL282, Inflammation EHCHL33 of the kidneys
VERBENACEAE					
<i>Lippia integrifolia</i> (Grieseb.) Hieron	Poleo del Inca	Leaves and Stems, fresh	Oral	5g per 1l water, 1l daily, 1 month.	Inflammation EHCHL76 of the kidneys
ZYGOPHYLLACEAE					
<i>Tribulus terrestris</i> L.	Abrojo, Cadillo	Whole plant, fresh	Oral	Boil 100g Abrojo, Amor Seco, Lampazo, Trinozo into 1/2 cup of water for 3 minutes. Drink 1/4 cup 1 time a day for 3 days.	Urinary disease GER137